In the Claims

1-4 cancelled

5. (Previously presented) A catalyst system comprising

A) at least one metallocene,

B) at least one Lewis base of the formula I

$M^1R^3R^4R^5$ (I)

wherein

R^3, R^4 and R^5 are identical or different and are each a hydrogen atom, a halogen atom, a C_1-C_{20}-alkyl, C_1-C_{20}-haloalkyl, C_6-C_{40}-aryl, C_6-C_{40}-haloaryl, C_7-C_{40}-alkylaryl or C_7-C_{40}-arylalkyl group or two or all three of the radicals R^3, R^4 and R^5 may be joined to one another via C_2-C_{20} units,

M^1 is an element of main group V of the Periodic Table of the Elements,

C) at least one support,

D) and at least one organoboron or organoaluminum compound which is made up of units of the formula II

$[(R^6)$-X-$M^2(R^8)$-X-$(R^7)]_k$ (II)

wherein

R^6 and R^7 are identical or different and are each a hydrogen atom, a halogen atom, a boron-free C_1-C_{40} group or an $Si(R^9)_3$ group,

where R^9 is a boron-free C_1-C_{40} group,

R^8 can be identical to or different from R^6 and R^7 and is a hydrogen atom, a

halogen atom, a C_1-C_{40} group or an $OSi(R^9)_3$ group,

X may be identical or different and are each an element of group V or VIa of the Periodic Table of the Elements or an NH group,

M^2 is an element of group IIIa of the Periodic Table of the Elements and

k is a natural number from 1 to 100,

and is covalently bound to the support.

6. (Previously presented) The catalyst system as claimed in claim 5, which further comprises an

organometallic compound of the formula (IV)

$[M^5R^{20}_p]_q$ (IV)

wherein

M^5 is an element of main group I, II or III of the Periodic Table of the Elements,

R^{20} are identical or different and are each a hydrogen atom, a halogen atom or a C_1-C_{40} group,

p is an integer from 1 to 3 and

q is an integer from 1 to 4.

7. (Previously presented) The catalyst system as claimed in claim 5, wherein M^1 is nitrogen or phosphorus.

8. (Previously presented) The catalyst system as claimed in claim 7,

wherein

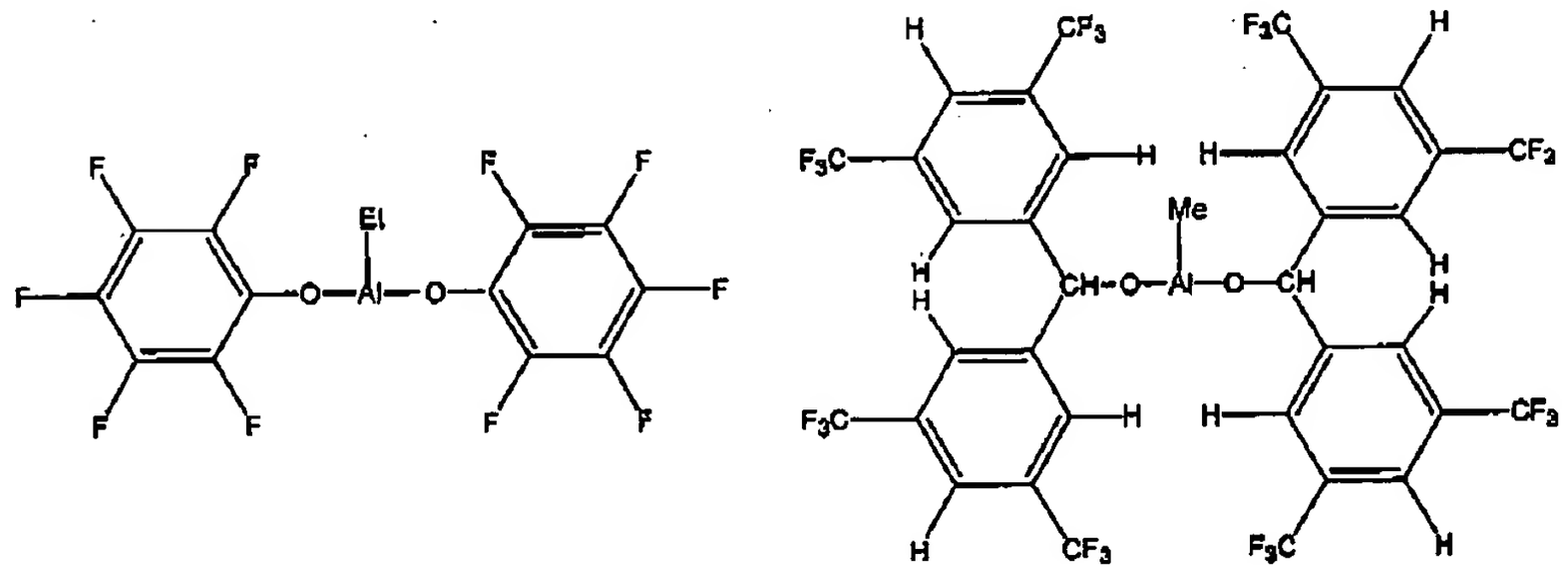
R^6 and R^7 are identical or different and are each a hydrogen atom, a halogen atom, a C_1-C_{20}-alkyl, C_1-C_{20}-haloalkyl, C_1-C_{10}-alkoxy, C_6-C_{20}-aryl, C_6-C_{20}-

haloaryl, C_6-C_{20}-aryloxy, C_7-C_{40}-arylalkyl, C_7-C_{40}-haloarylalkyl, C_7-C_{40}-alkylaryl, C_7-C_{40}-haloalkylaryl or an $Si(R^9)_3$ group,

R^9 is a C_1-C_{20}-alkyl, C_1-C_{20}-haloalkyl, C_1-C_{10}-alkoxy, C_6-C_{20}-aryl, C_6-C_{20}-haloaryl, C_6-C_{20}-aryloxy, C_7-C_{40}-arylalkyl, C_7-C_{40}-haloarylalkyl, C_7-C_{40}-alkylaryl, C_7-C_{40}-haloalkylaryl,

R^8 is a hydrogen atom, a halogen atom, C_1-C_{20}-alkyl, C_1-C_{20}-haloalkyl, C_1-C_{10}-alkoxy, C_6-C_{20}-aryl, C_6-C_{20}-haloaryl, C_6-C_{20}-aryloxy, C_7-C_{40}-arylalkyl, C_7-C_{40}-haloarylalkyl, C_7-C_{40}-alkylaryl, C_7-C_{40}-haloalkylaryl or an $OSi(R^9)_3$ group.

9. (Previously presented) The catalyst system as claimed in claim 5, wherein the compound of the formula II is selected from the group consisiting of



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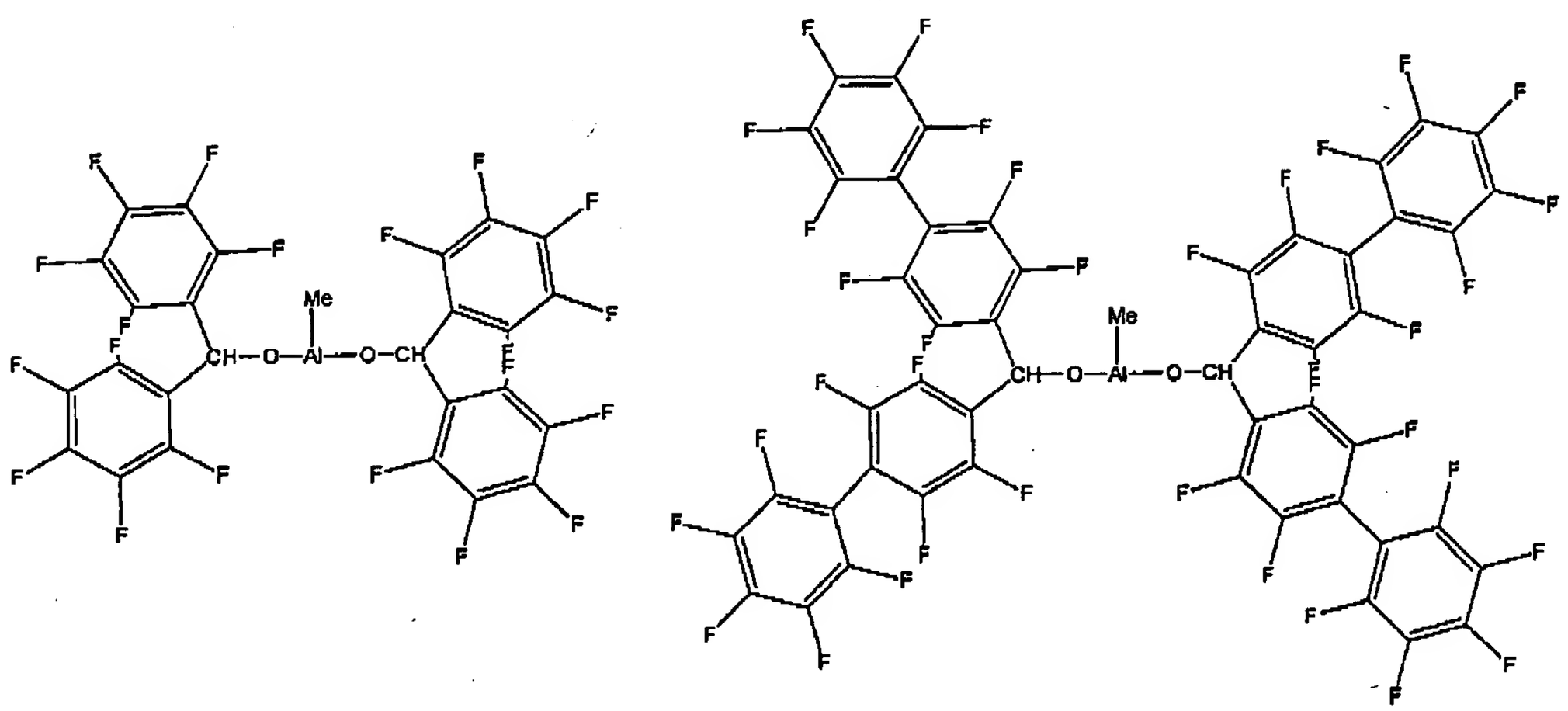

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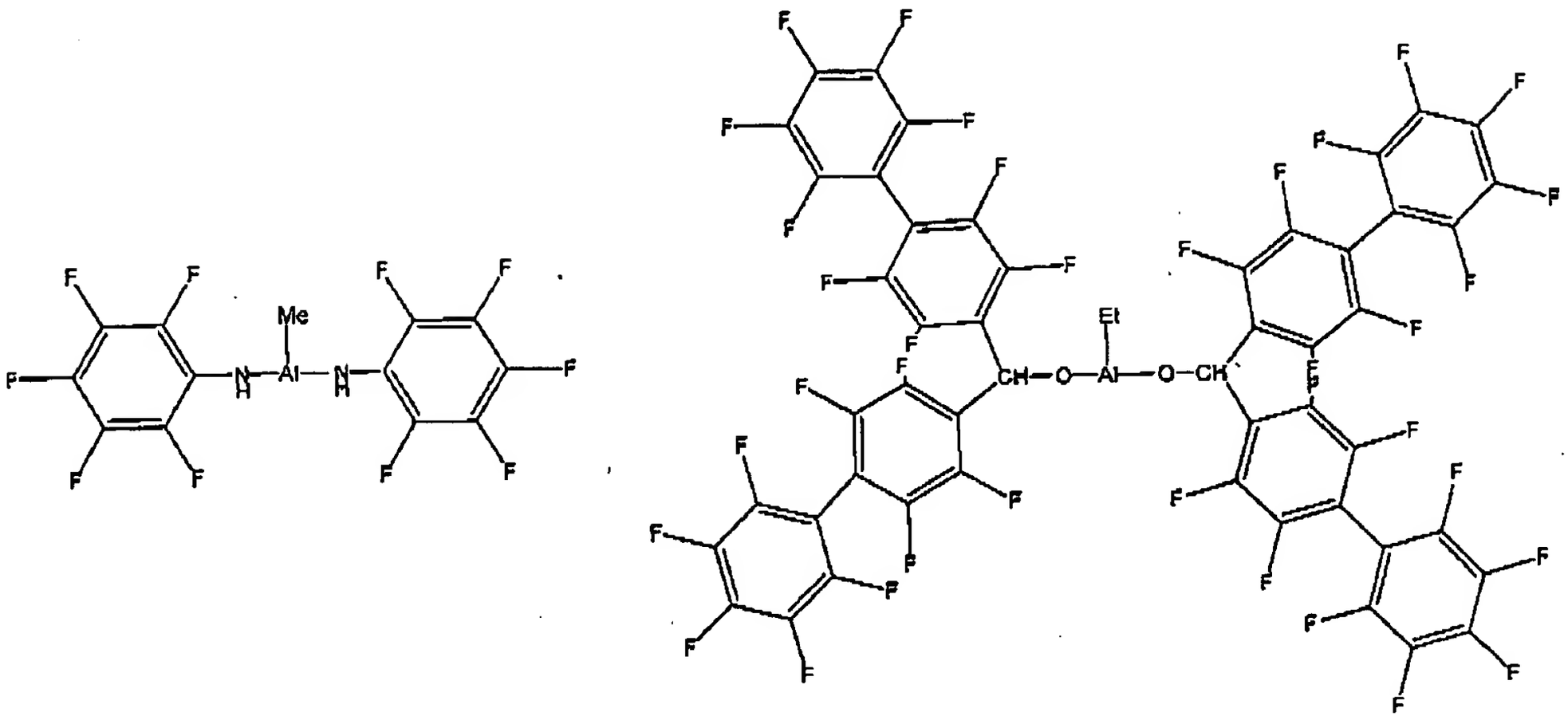

10. (cancelled)

11. (Previously presented) The catalyst system as claimed in claim 8, wherein M^2 is boron.

12. (Previously presented) The catalyst system as claimed in claim 5, wherein R^8 is hydrogen atom, a halogen atom, a C_2-C_{20}-alkyl, C_1-C_{20}-haloalkyl, C_1-C_{10}-alkoxy, C_6-C_{20}-aryl, C_6-C_{20}-haloaryl, C_6-C_{20}-aryloxy, C_7-C_{40}-arylalkyl, C_7-C_{40}-haloarylalkyl, C_7-C_{40}-alkylaryl, C_7-C_{40}-haloalkylaryl or an $OSi(R^9)_3$ group.

13. (Previously presented) The catalyst system as claimed in claim 9, wherein said at least one support is talc, an inorganic oxide or a polymer powder.

14. (Previously presented) The catalyst system as claimed in claim 5, wherein said at least one support is talc, polyolefin powder, MgO, ZrO_2, TiO_2, aluminum oxide or B_2O_3.

15. (Previously presented) The catalyst system as claimed in claim 6, wherein M^5 is lithium or aluminum and R^{20} are identical or different in each area hydrogen atom, a halogen atom, a C_1-C_{20}-alkyl, C_6-C_{40}-aryl, C_7-C_{40}-arylalkyl or C_7-C_{40}-alkylaryl.

16. (Previously presented) The catalyst system as claimed in claim 10, which further comprises a trimethylaluminum, triethylaluminum, triisopropylaluminum, trihexylaluminum, trioctyluminum, tri-n-butylaluminum, tri-n-propylaluminum, triisoprenylaluminum, dimethylaluminum monochloride, diethylaluminum monochloride, diisobutylaluminum monochloride, methylaluminum sesquichloride, ethylaluminum sesquichloride, dimethyaluminum hydride, diethylaluminum hydride, diisopropylaluminum hydride, dimethylaluminum trimethylsiloxide, dimethylaluminum triethylsiloxide, phenylalane, pentafluorophenylalane, or o-tolylalane.

17. (Previously presented) The catalyst system as claimed in claim 5, wherein the at least one metallocene is of the formula III

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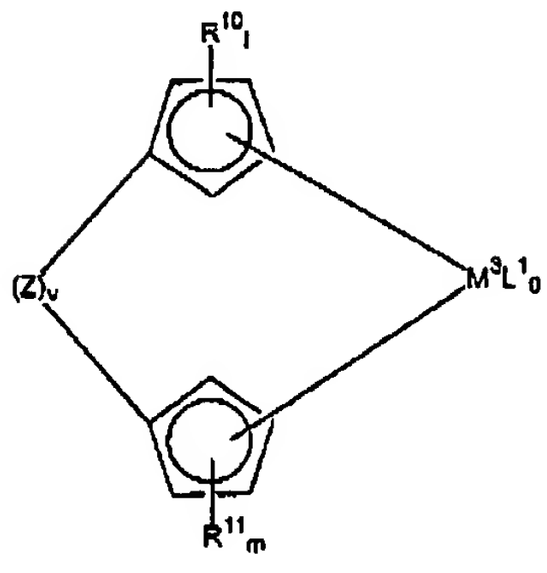


(III)

where

M^3 is a metal of transition group III, IV, V or VI of the Periodic Table of the Elements,

R^{10} are identical or different and are each a hydrogen atom, $Si(R^{12})_3$, or a C_1-C_{30} group, or two or more radicals R^{10} may be joined to one another in such a way that the radicals R^{10} and the atoms of the cyclopentadienyl ring which connect them form a C_4-C_{24} ring system which may in turn be substituted,

R^{11} are identical or different and are each a hydrogen atom, $Si(R^{12})_3$, or a C_1-C_{30} group, or two or more radicals R^{11} may be joined to one another in such a way that the radicals R^{11} and the atoms of the cyclopentadienyl ring which connect them form a C_4-C_{24} ring system which may in turn be substituted,

R^{12} are identical or different and are each a hydrogen atom or a C_1-C_{40} group,

l is 5 when v = 0, and l is 4 when v = 1,

m is 5 when v = 0, and m is 4 when v = 1,

L^1 may be identical or different and are each a hydrogen atom, a C_1-

C_{10}-hydrocarbon group, a halogen atom, or OR^{16}, SR^{16}, $OSi(R^{16})_3$, $Si(R^{16})_3$, $P(R^{16})_2$ or $N(R^{16})_2$, where R^{16} is a halogen atom, a C_1-C_{10}-alkyl group, a halogenated C_1-C_{10}-alkyl group, a C_6-C_{20}-aryl group or a halogenated C_6-C_{20}-aryl group, or each L^1 is a toluenesulfonyl, trifluoroacetyl, trifluoroacetoxyl, trifluoromethanesulfonyl, nonafluorobutanesulfonyl or 2,2,2-trifluoroethanesulfonyl group,

o is an integer from 1 to 4,

Z is a bridging structural element between the two cyclopentadienyl rings and v is 0 or 1.

18. (Previously presented) A process for preparing a polyolefin which comprises polymerizing one or more olefins in the presnce of the catalyst system as claimed in claim 5.

19. (Previously presented) The catalyst system as claimed in claim 17, wherein

M^3 is Ti, Zr or Hf,

R^{10} are identical or different and are each a hydrogen atom, $Si(R^{12})_3$, C_1-C_{25}-alkyl, C_2-C_{25}-alkenyl, C_3-C_{15}-alkylalkenyl, C_6-C_{24}-aryl, C_5-C_{24}-heteroaryl, C_7-C_{30}-arylalkyl, C_7-C_{30}-alkylaryl, fluorinated C_1-C_{25}-alkyl, fluorinated C_6-C_{24}-aryl, fluorinated C_7-C_{30}-arylalkyl, fluorinated C_7-C_{30}-alkylaryl or C_1-C_{12}-alkoxy, or two or more radicals R^{10} may be joined to one another in such a way that the radicals R^{10} and the atoms of the cyclopentadienyl ring which connect them form

a C_4-C_{24} ring system which may in turn be substituted,

R^{11} are identical or different and are each a hydrogen atom, $Si(R^{12})_3$, C_1-C_{25}-alkyl, C_2-C_{25}-alkenyl, C_3-C_{15}-alkylalkenyl, C_6-C_{24}-aryl, C_5-C_{24}-heteroaryl, C_5-C_{24}-alkylheteroaryl, C_7-C_{30}-arylalkyl, C_7-C_{30}-alkylaryl, fluorinated C_1-C_{25}-alkyl, fluorinated C_6-C_{24}-aryl, fluorinated C_7-C_{30}-arylalkyl, fluorinated C_7-C_{30}-alkylaryl or C_1-C_{12}-alkoxy, or two or more radicals R^{11} may be joined to one another in such a way that the radicals R^{11} and the atoms of the cyclopentadienyl ring which connect them form a C_4-C_{24} ring system which may in turn be substituted,

R^{12} are identical or different and are each a hydrogen atom, C_1-C_{20}-alkyl, C_1-C_{10}-fluoroalkyl, C_1-C_{10}-alkoxy, C_6-C_{14}-aryl, C_6-C_{10}-fluoroaryl, C_6-C_{10}-aryloxy, C_2-C_{10}-alkenyl, C_7-C_{40}-arylalkyl, C_7-C_{40}-alkylaryl or C_8-C_{40}-arylalkenyl, or

l is 5 when v = 0, and l is 4 when v = 1,

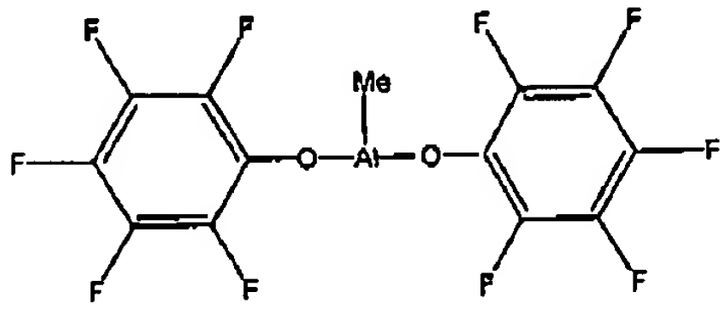
m is 5 when v = 0, and m is 4 when v = 1,

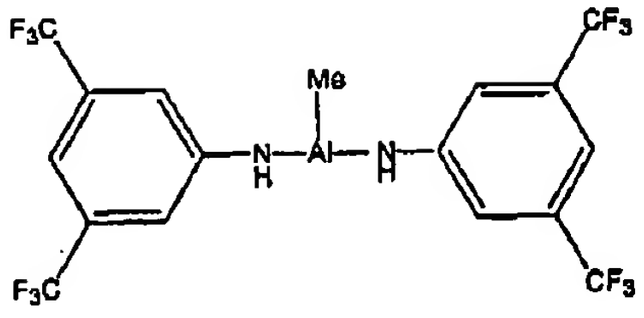
L^1 may be identical or different and are each a hydrogen atom, C_1-C_{10}-alkyl, C_6-C_{10}-aryl, a halogen atom, or OR^{16}, SR^{16}, $OSi(R^{16})_3$, $Si(R^{16})_3$, $P(R^{16})_2$ or $N(R^{16})_2$, where R^{16} is a halogen atom, a C_1-C_{10}-alkyl group, a halogenated C_1-C_{10}-alkyl group, a C_6-C_{20}-aryl group or a halogenated C_6-C_{20}-aryl group, or each L^1 is a toluenesulfonyl, trifluoroacetyl, trifluoroacetoxyl, trifluoromethanesulfonyl, nonafluorobutanesulfonyl or 2,2,2-trifluoroethanesulfonyl group,

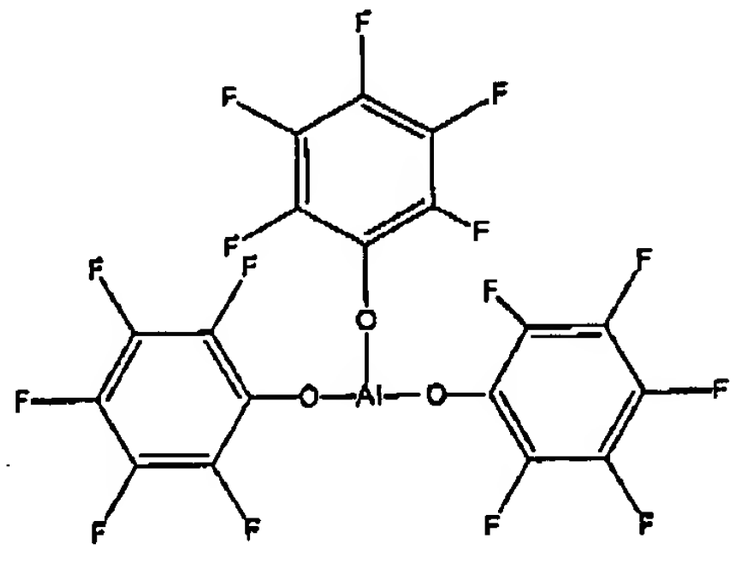
o is 2,

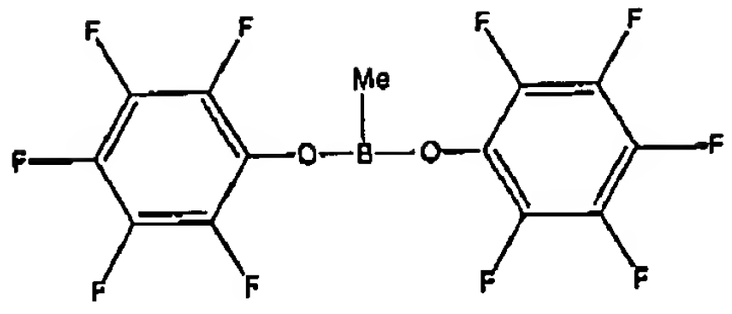
Z is a bridging structural element between the two cyclopentadienyl rings and v is 0 or 1.

20. (new) The catalyst system as claimed in claim 5, wherein the compound of the formula II is









or